

REMARKS

Reconsideration and further examination is respectfully requested.

Rejections under 35 U.S.C. § 103 (a)

Claims 1-39 were rejected under 35 U.S.C. §103(a) as being unpatentable over Busuioc et al (hereinafter Busuioc) (U.S. 2001/0033551 A1) in view of Levandovsky et al. (hereinafter Levandovsky) (2002/0063915 A1).

Busuioc:

Busuioc describes, in the abstract, "... a distributed control system ... of co-operating intelligent software agents which individually have control, or responsibility for managing, one or more nodes of the communications network..." (Abstract) The software agents of Busuioc are of two types: Customer Agents (CAs) and Service Management Agents (SMAs). "Each CA ... is associated with a SMA ... and acts to negotiate between a GMSN customer and a SMA that might provide service to that customer..." (Busuioc, paragraph 68).

At column 75 Busuioc states:

"... Conveniently, there may be one software agent, a SMA 5, situated at each of the GMSN nodes 3, each SMA 5 monitoring its underlying switch 3 as well as the links 2 extended to the switch 3. Primarily, each SMA 5 controls just one switch 3 but any given SMA 5 has the ability to control a number of switches 3 simultaneously. That is, a SMA 5 is able to specify which incoming and outgoing communication links 2 a service will use..."

Busuioc states, at paragraph 79:

"Acting in a dynamically changing environment, a SMA 5 may evolve through various states 30. A state 30 is defined as an instance of agent's knowledge, created as a result of the agent's interaction with the physical environment and/or contact with other agents..."

Accordingly, in Busuioc the communication network is controlled by the SMA in response to knowledge that the SMA collects from other *agents*, including Customer Agents.

With regard to user input, Busuioc states, at paragraph 0108:

“On receiving a customer request for a new service, the CA 6 matches it against the range of available services offered by the service provider and builds a service specification which is handed over to the SMA responsible for the source node for that particular service...”

Thus, client requests, entered at the user interface, are forwarded without authentication to the SMA.

Levandovsky:

Levandovsky describes a method for validating a path through a switched optical network, wherein a bit error rate for the path is determined. The path is validated or admitted into the network if the bit error rate is found to be within a predetermined range.

With regard to the Busuioc and Levandovsky combination of references, the Examiner states, at pages 3-4 of the office action:

“... Although Busuioc shows substantial features of the claimed invention including a communication network that is capable of supporting a range of services, he does not explicitly show an optical communication network that comprises an automatically switched optical/transport (ASON), and wherein the UNI comprises an ASON UNI. Nonetheless, this feature is well known in the art and would have been an obvious modification of the system disclosed by Busuioc, as evidenced by Levandovsky US PUB (20020063915). In an analogous art, Levandovsky whose invention is about a method for validating a path through a switched optical network, disclose an optical communication network that comprises an automatically switched optical/transport network (ASON), and wherein the [fig. 1, elements 110, 120, and 156, paragraph 14 page 1]... Giving the teaching of Levandovsky, a person of ordinary skill in the art at the time of the invention would have readily recognized the desirability and the advantage of modifying Busuioc by employing the switched optical network system of Levandovsky, because it is capable of delivering an acceptable level of performance that is both efficient and economical...”

Examiner has failed to establish a *prima facie* case of obviousness

It is well established that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Examiner has failed to satisfy several of these criteria.

Combination neither describes nor suggests the claimed invention

Claims 1-12:

The combination of Levandovsky and Busuioc fails to describe or suggest all of the elements of the claims. For example, claim 1 recites "...An optical service agent for managing connection establishment and related services for a user in an optical communication network comprising a plurality of optical devices the optical service agent comprising ... a user-to-network interface (UNI) for interfacing the user with an optical communication network ... authentication logic for controlling access by the user to the UNI ... a peer-to-peer interface for interfacing with peer users; and optical service logic, coupled to the UNI and the peer-to-peer interface, for managing the optical communications network in accordance with said connection establishment and related services requested by the user..."

Applicants note that Busuioc describes two agents; a CA agent and an SMA agent. The CA agent includes a 'user interface', but appears, as shown in Figure 1, to couple only to an SMA agent. Busuioc states, at page 3, paragraph [0068] "Each CA 6 is associated with a SMA 5 and acts to negotiate between a GMSN customer and a SMA that might provide a service to that

customer...” Note that in Busuioic, the CA executes on different clients which are coupled to a service provider, and the SMA operates on a service provider. No mention or suggestion is made of any communication between CAs, and in fact Figure 1 expressly illustrates that communication exists only between a CA and an SMA. When reading Busuioic in context, this makes sense, as it is frequently desirable to separate clients that are serviced from a service provider, as generally clients enter into separate contracts with the SMA, and also require separation for security purposes.

The Examiner states, at page 3 of the office action:

“... Examiner notes that the rejections are based on combination of Busuioic and Levandovsky .... Furthermore, Busuioic teaches “software agents of more than one type” and “the service management agents which have control over nodes of the network enter a negotiation process with customer agents in the provision of new services, so as to meet the constraints of both customer requirements and the interest of the service provider. In the event of agent failure, the service management agents initiate a bidding process to reallocate the responsibilities of the failed agent.” (Abstract) Additionally, Busuioic Multi-Service Network (MSN) is any network that is capable of supporting a range of services. The Pan-European Integrated Broadband Network investigated in a European PACE initiative, and referred to in the paper “Broadband Communication Management – The RACE TMN Approach” Furthermore, the trend in such networks is toward global networks where the MSN can span many countries, hence the emergence of GMSNs. Therefore, such a network will inherently include both UNI and a peer-to-peer interface (fig. 1 and ¶ 0014)...”

Applicants disagree with several points in the Examiner’s reasoning. First, with regard to the statement that ‘Busuioic teaches software agents of more than one type’, Applicants agree that Busuioic teach two types of agents; a CA and an SMA, the CA including a UNI, and the SMA including a peer to peer interface. However, neither Busuioic, Levandovsky, nor the combination thereof teach an agent having both the UNI and the peer-to-peer interface, as recited in the claims. Applicants note that there is a distinction between the two types of architectures; in the Busuioic, the SMA has ultimate control over the delivery of services to the client (which, as

stated in the previous response makes sense given that the SMA are associated with service providers, and the CAs are associated with customers). In the present invention, the tight integration of the UNI and NNI allows the customer to more closely their service offerings in the optical network.

The Examiner states “Busuioc Multi-Service Network (MSN) is any network that is capable of supporting a range of services,” and refers the Applicant to a paper. However, Applicants are unclear as to the motivation of the Examiner in citing this paper, as it is not used to support a rejection of the claims and does not appear to be cited in any Information Disclosure sheets indicated as reviewed by the Examiner. In fact, Applicant is unable, by performing an internet search, to identify which paper is being referred to by the Examiner. Clarification of the rejection is essential to allow the Applicant to be able to fully defend their position with regard to patentability of the claims. For at least this reason, the rejection is improper and should be withdrawn.

Dependent claims 2-12 serve to add further patentable limitations to claim 1, and are allowable for at least the reasons put forth above with regard to claim 1.

Claims 13-25:

Claim 13 recites “... A device comprising... a user application requesting a communication service from an optical communication network; and an optical service agent for managing connection establishment and related services for the user application to obtain the communication service, wherein the optical service agent comprises ... a user-to-network

interface (UNI) for interfacing with the optical communication network ... a peer-to-peer interface for interfacing with peer users; and optical service logic for interacting with the optical communication network via the UNI and with the peer users via the peer-to-peer interface for managing said connection establishment and related services for the user application...”

In contrast to providing ‘an optical service agent for managing the connection establishment and related services for the user application...’ applicant notes that Busuioc teaches the use of two discrete agents; a CA and an SMA, each of which performs distinct services. For at least the reason that the combination of references fail to describe several of the limitations of the claims, it is respectfully requested that the rejection be withdrawn.

Dependent claims 14-25 depend upon claim 13, add further patentable limitations to claim 13 and are allowable for at least the reasons put forth with regard to claim 13. Thus it is requested that the rejection of these claims also be withdrawn.

Claims 26-33:

Claim 26 recites “A system comprising an optical communication network ... a first network user coupled to the optical communication network , wherein the first network user comprises an optical service agent *executing on an optical switched router and comprising a user-to-network interface (UNI) and a peer-to-peer interface, the optical services agent* for obtaining optical communication services from the optical communication network via the user-to-network interface (UNI) and for managing connection establishment and related services for the first network user....” As mentioned above, both Busuioc, Levandovsky alone and in combination, fail to describe or suggest “...an optical service agent ... comprising a user-to-network interface ... and a peer-to-peer interface...” For at least the reason that the combination

of references fail to describe several of the limitations of the claims, it is respectfully requested that the rejection be withdrawn.

Dependent claims 27-33 depend upon claim 26, add further patentable limitations to claim 26 and are allowable for at least the reasons put forth with regard to claim 26. Thus it is requested that the rejection of these claims also be withdrawn.

Claims 34 – 39:

Independent claim 34 recites "...A method for managing communication establishment and related services for a user in an optical communication system, the method comprising at least one of ... A method for managing communication establishment and related services for a user in an optical communication system by an optical services agent operating at an optically switched router, the optical services agent comprising a user-to-network interface and a peer-to-peer interface, the method comprising at least one of ... negotiating various connection and connection-related services on behalf of the user ... modeling at least one connection for the user ... reserving connection and connection-related services for the user ... establishing a connection for the user ... and aggregating multiple optical communication paths over a connection ..."

As mentioned above with regard to claims 1, 13 and 26 no mention is found in Busuioc or Levandovsky of the step of "authenticating a request for communication services, the request including a service level agreement (SLA) ..." For at least this reason, claim 34 and its dependent claims 35-39 are patentable over the combination of Busuioc and Levandovsky, and it is requested that the rejection be withdrawn.

Conclusion

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned, Applicants' Attorney at 978-264-6664 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Conclusion

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned, Applicants' Attorney at 978-264-6664 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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Date

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